HILLSICION Guidelines



Hillside

Design Guidelines

COUNTY OF LOS ANGELES

DEPARTMENT OF REGIONAL PLANNING

320 WEST TEMPLE STREET LOS ANGELES CALIFORNIA 90012



Table of Contents

	PAGE
PURPOSE	1
GOALS	1
APPLICABILITY	1
PROJECT DESIGN	2
GRADING	3
ANDFORM GRADING	4
CIRCULATION	5
SITE DESIGN ELEMENTS	6
FIRE PROTECTION	7
LANDSCAPING	8
PROCEDURE	9
SUBMISSION EXHIBITS	9
PLANT PALETTE	10
PLANT LIST	11
CREDITS	

Purpose

The policies of the Los Angeles Countywide General Plan seek to preserve significant natural features in hillside areas through the use of Creative design techniques. These Hillside Development Guidelines were prepared by a group of leading professionals in both the public and private sectors. They are intended to provide guidance to those preparing plans for hillside development within the framework of the existing General Plan, and adopted ordinances. These guidelines are general in nature and should not be construed as substituting for official regulations. Rather they can help to guide proposals within the broad range of authorized designs so that projects will serve the public interest through rational, safe and environmentally sound hillside development.

Goals

The goal of these guidelines is to promote quality design and land development that is compatible with existing natural surroundings. The use and application of these guidelines also will:

- Enable applicants to design acceptable projects at the earliest stage of case processing. This approach can avoid the possibility of costly and time consuming revisions.
- 2. Provide the Regional Planning staff with written guide lines to be utilized initially at the department's One Stop Counseling Center and during further processing.

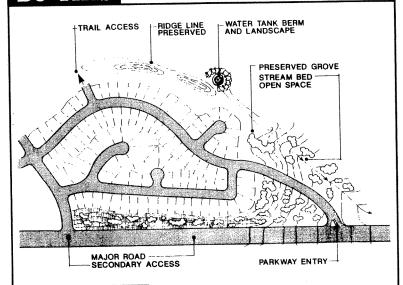
Applicability

These guidelines apply to residential, commercial and industrial projects within Hillside Management Areas. The General Plan defines such areas as land having natural slopes in excess of 25%. Development in hillside areas of lesser slopes would also benefit from conformance with these guidelines.

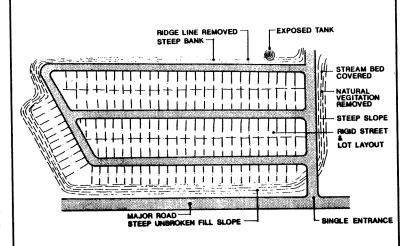
- A. It is the objective of the General Plan to preserve significant natural features by encouraging design which minimizes disturbance to existing topographical forms. A development should be designed to fit into the hillsides rather than altering the earth forms to create a flat land type of development.
- B. Project design should initially identify the existing geographic, topographic and environmental features of the site (such as geological hazards, steep slopes, ridges, valleys, streams, views, existing drainage patterns, significant biota and outcroppings), then determine the impact the proposed projects will have on these elements.
- C. A determination must be made as to how traffic circulation, fire protection and access, drainage, sound barriers, buffers, land alteration and other measures will be employed to limit negative impacts. The final site plan should reflect how all of these impacts are successfully solved or mitigated.
- D. Other elements that should be considered in a successful design are:
- Preservation of distinctive natural features and the general existing topographical forms.

Project Design

DO THIS



NOT THIS



- 2. Preservation of prominent skyline ridge silhouettes.
- Location of roads and structures below skyline ridges.
- 4. Preservation of significant landscaping.
- Circulation related to existing contours. Undulating road patterns, cul-desacs, split roadways and varying grades are encouraged.
- Incorporation of hiking, bicycle, walking and equestrian trails where appropriate.
- Variation in lot size, building placements, setbacks and orientation.
- Variable changes in elevation and siting of buildings to ensure views and avoid monotony.
- Preservation of steep hillsides by clustering buildings or use of other innovative approaches.
- Use of flag lot design where essential to reduce grading.
- 11. Preservation of significant trees and habitat; natural watercourses; wildlife corridors and distinctive natural features.
- Sensitivity to the project's appearance from lower or adjacent development.
- Placement of water tanks and other unsightly forms below ridge lines and in a bermed and landscaped area.

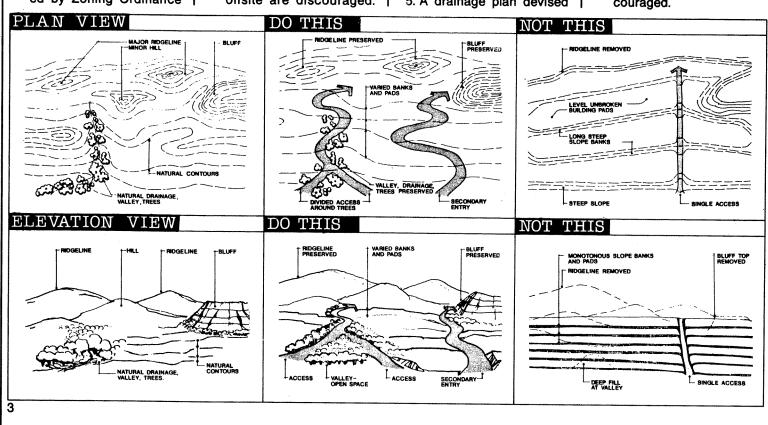
- A. Grading should minimize disturbance to the natural landform; not destroy visual quality and community character nor create conditions that result in landslides, flooding or erosion.
- B. No grading shall take place in a known or suspected hazardous area as determined by the Department of Public Works without a geological survey and/or other data and tests as requested. No grading shall take place in a Significant Ecological Area (SEA), unless an Environmental or Archaeological Report is submitted as required by Zoning Ordinance

Grading

Section 22.56.215. Grading in an SEA area should generally be avoided.

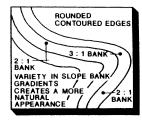
- C. Good grading design must be exercised for safety as well as aesthetics and should incorporate the following measures:
- Utilization of land form or contour measures to produce, cut and fill slopes compatible with existing land character. Continuous unbroken slope surfaces that are visible from offsite are discouraged.
- Graded slopes contoured by varying slope increments and undulating banks vertically and horizontally.
- Varied cut and fill banks and drainage terrace spacing to alleviate monotony and allow random landscaping.
- Berms at top of slopes and other locations used to screen, vary profile and insure drainage away from slopes.
- 5. A drainage plan devised

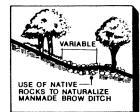
- to direct flow to streets or approved collector systems which will be maintained by a public agency or maintenance district.
- Varied pad elevations above street level to avoid appearance of monotonous flat, level pads.
- 7. Creation of views from hillside sites.
- Slopes less steep than 2 to 1 are encouraged and may not require drainage systems, if approved by the Department of Public Works.
- Cuts and fills in excess of 50 feet depth are discouraged.

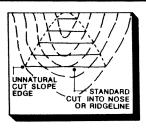


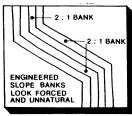
Landform Grading

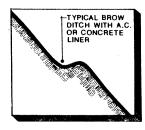






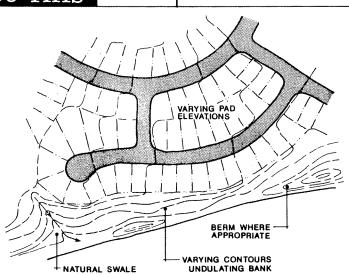


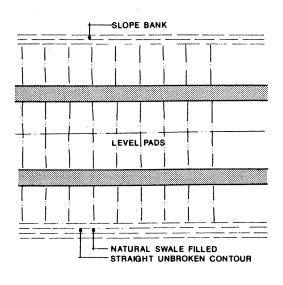




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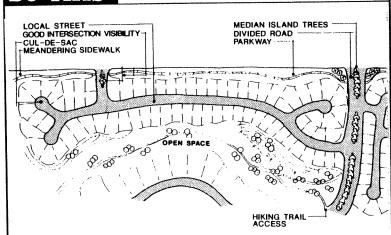


Circulation

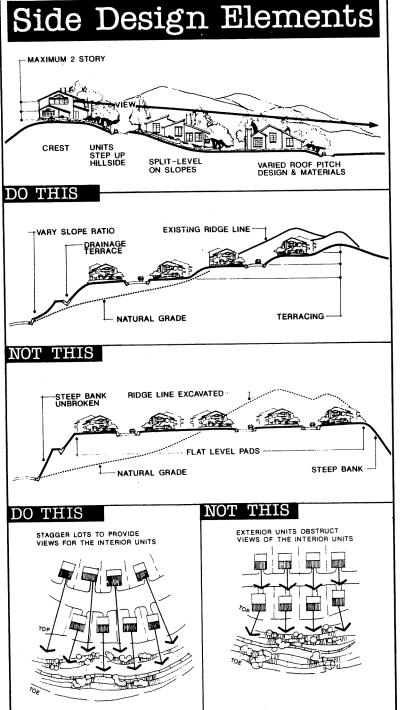
- A. The following elements of road and sidewalk circulation should be incorporated in hillside developments:
- Roadway design generally to follow existing contours; minimizing grading and resulting in an informal, curving internal network.
- Provide two major points of access to principal roads when projects exceed 150 units or when required by Fire Department due to fire hazard.
- Preservation of existing trees and natural features by dividing or routing roads and sidewalks around these elements.
- 4. Employ cul-de-sacs and common drives where practicable and desirable.
- 5. In areas of light pedestrian traffic, sidewalks

- may be installed on only one side of the street.
- Provide for safe, convenient pedestrian access to schools, parks and other recreational facilities.
- Provision for safe dropoff points for buses and automobiles at all schools.
- 8. Illumination of streets with low intensity, unobtrusive lighting as specified by the Department of Public Works.

DO THIS



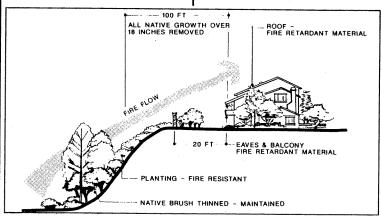
- A. Site homes to promote views towards points of interest, adjacent hills, greenbelts, open spaces and strive to avoid obstruction of view from other units.
- B. Architectural design of hillside homes, because of high visibility, should avoid rigid, monotonous and repetitive design and incorporate the following:



- Vary the scale, form, placement, materials and treatment of designs.
- Multiple or split level designs that fit into the slope are encouraged.
- Single family dwellings shall be a maximum of two stories and not exceed a height of 35 feet.
- Flat roofs are discouraged.
- Provisions for a screen or other architectural solution around rooftop mechanical equipment.
- Gutters and downspouts designed to direct water to streets or a collector system.

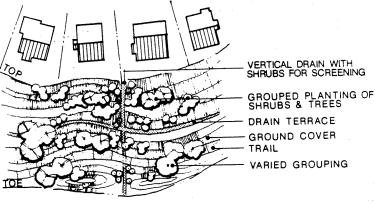
Fire Protection

- A. Hillside areas are especially prone to devastating fires. Each proposed development shall be evaluated for the potential fire hazard. Vegetation types and the area's fire history shall be considered. The design of developments shall incorporate the following from Title 32 (County Fire Code) and Title 26 (County Building Code):
- Brush and hazard areas cleared and maintained as set forth under landscape Guidelines and County Fire Code Section 11.502 and 11.503.
- 2. Open space areas maintained by establishing a Homeowners Association or Maintenance District.
- New planting featuring fire and drought resistant species as listed in the appendix included herein.
- 4. Buildings should be setback a minimum of 20 feet from downslopes. Exceptions shall be considered for minimal downslopes, special building design features and/or lack of vegetative fuel.
- Roofs, overhangs and undersides of exposed balconies protected with fire resistant materials in Fire Zone 4.

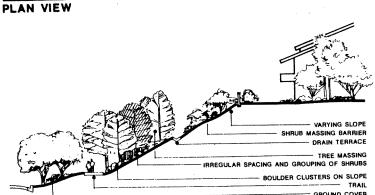


- A. Landscaping of graded slopes is essential to the mitigation of adverse visual impacts created by hill-side grading. It also provides scenic beauty; improves soil condition; retards soil erosion and fires and screens unsightly views.
- B. Design
- All graded slopes and manufactured open spaces shall be landscaped. Native planting will require irrigation for plant establishment, permanent irrigation for other species.
- Existing trees and plants that are valuable because of beauty, age and size should be saved.
- Enhance new landform and exposed grading by locating and blending trees, shrubs and ground cover of varying height, mass and color.
- Trees and shrubs should be grouped and spaced to camouflage drainage channels and other unsightly areas.
- C. Plant Selection
- The selection of plants shall reflect climate and conditions of the locale and feature species that are fire resistant (low vegetation class), drought resistant and capable of controlling erosion.

Landscaping



SLOPE BANK LANDSCAPE



SLOPE BANK LANDSCAPE SECTION VIEW

- New planting shall average one shrub per 100 square feet and one tree per 800 square feet.
- The plant list in the appendix of these guidelines may be augmented by others that are suitable for the climate, terrain and soil conditions.
- D. Irrigation
- Slopes that are greater than 10 feet in height shall be provided with an irrigation system that will allow establishment and maintenance of landscaping materials.
- 2. Water conservation is an important consideration.

Devise a system which will accomplish this goal. Large overhead systems allow water runoff and excessive evaporation. Low level and drip systems are more efficient.

E. Maintenance

- 1. Open space and common facilities shall be maintained by the establishment of a property owners association with required covenants, conditions and restrictions. The alternative may be establishment or affiliation with a special assessment district for maintenance of community natural area.
- Undisturbed natural areas shall have all hazardous brush and materials removed.
- 3. Within 30 feet of structures all hazardous brush and trees shall be removed and new ground cover installed and maintained.
- 4. From 30 feet to 100 feet all growth over 18 inches high shall be removed where deemed hazardous by the Department of Forester and Fire Warden.
- 5. In high fire risk areas, the specific requirements of the Department of Forester and Fire Warder must be followed. Implementation may require buffers or controlled burns prior to development.

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Procedure

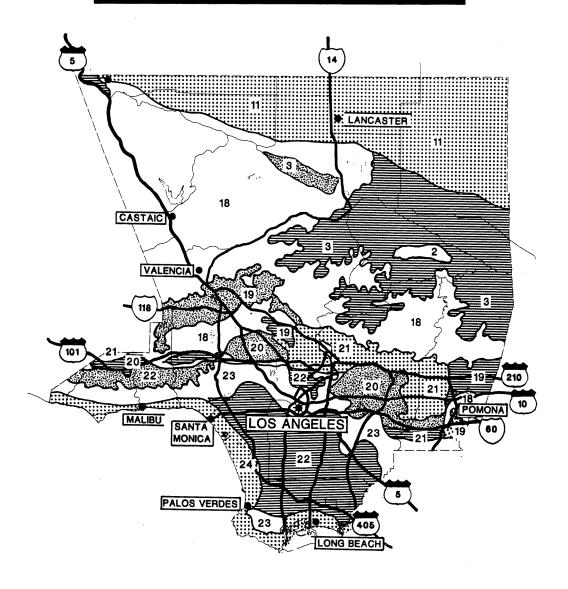
- A. The applicant should initially file for subdivision approval, zone change, conditional use permit or other related permits. An initial review meeting is conducted with representatives of Regional Planning, Public Works, Forester and Fire Warden. At that time, these guidelines will be delivered to the applicant.
- B. Many ordinance requirements are not mentioned within these guidelines (such as road widths, grades, curbs, fire access, hydrants and oak tree preservation). All County ordinance requirements must be complied with and, therefore, the applicant should contact all County departments affected by a development submittal.

Submission Exhibits

- A. The following information and exhibits shall be submitted to the Department of Regional Planning by the applicant:
- 1. A brief outline of the project
- 2. A list of existing and proposed zoning
- A description of, and the zoning of, adjacent properties.
- B. Prior to the time of public hearing before the Regional Planning Commission or a Hearing Officer, the following exhibits shall be submitted:
- 1. Photographs of the site, preferably from the air.
- A site plan indicating roads, paths, general drainage system, open space, parks, school sites, ridge lines, existing trees, rock outcroppings and features, natural drainage ways, areas of landscaping and building outlines.
- 3. A grading plan indicating natural and finished grades

- at no more than 10 foot contours; areas of cut and fill; special geological areas and remedial solutions. This information may be incorporated on the site plan providing it can be easily shown and understood.
- Representative cross sections to illustrate typical slopes, berms, building placement, ridge lines, view lines (if appropriate).
- Plans and elevations or renderings of proposed dwelling units and other buildings.
- A landscape plan with a listing of proposed plant materials.
- If required by staff, information on acreage, density, number of dwelling units, slope analysis, amount of cut and fill.
- Other information required to process the specific approvals requested by the applicant.

Plant Palette



LOS ANGELES COUNTY ENVIRONMENTAL ZONES

SOURCE: SUNSET WESTERN GARDENBOOK, LANE PUBLISHING

PLANT LIST		DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE ¹
Arctostaphylos "edmundsii"	Little Sur Manzanita	•		•	Light green White flowers	6-9; 14-24
Arctostaphylos hookeri "Monterey Carpet"	Monterey Manzanita	•		•	Bright green Pale pink flowers	6-9; 14-24
Arctostaphylos uva- ursi "Point Reyes" and "Radiant"	Bear Berry	. •	·	•	Green Pink flowers	1-9; 14-24
Atriplex glauca	Grayleaf creeping saltbrush	•		•	Grey-green White flowers	12-24
Atriplex semibaccata	Australian creeping saltbrush	•	•	•	Grey Green	8.9; 12-24
Baccharis Pilularis "Twin Peaks II"	Dwarf Coyote Bush	•	•	•	Dark green Yellow-green flowers	5-11; 14-24
Carpobrotus edulis	Long-leafed ice plant	•	•	•	Green Pale-yellow to rose flowers	12-24
Ceanothus griseus	Carmel Ceanothus		•	. •	Deep Blue flowers	4-7; 14-24
Delosperma alba	White Australian	•	•	•	Green	12-24
Ficus pumila	Creeping fig (vine)	•		•	Green	8-24
Gazania Hybrid	Gazania	•	•	•	Varies	8-24
Gazania Rigans	Gazania	•	•		Varies	8-24
Grindelia stricia	Gum-plant (perennial)			•	Grey-green Yellow flowers	N.L.
Justicia californica	Chuparosa	•			Grey-Green	10-13
Pennisetum setaceum	Fountain grass	•			Rose White flowers	All Zones
Resmarinus officinalis	Rosemary	•			Lavender flowers	All Zones
Santolina virens	Lavender Cotton	. •	•		Bright green Pale-yellow flowers	All Zones
Zauscheneria Californica	California Fuchsia	•			Grey-green	4-10;12-24

PLANT LIST SMALL SHRUBS (3-5 Feet	t)	DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
Acacia "ongerup"	Acacia	•	•		Grey-green Yellow flowers	18-24
Acacia "Pecoffverde"	Acacia	•	•		Grey-green Yellow flowers	18-24
Achillea millefoliunm	Common Yarrow	•		•	Grey-green White or yellow flowers	All Zones
Achillea tomentosa	Wooly Yarrow	•	•		Grey-green White or yellow flowers	All Zones
Artemesia monosperma		•	•		Grey-green	All Zones
Artemesia pycnocephala	Coast Sagebrush	•	•		Grey Pale yellow flowers	All Zones
Atriplex undulata	Saltbush	•	•	•	Grey-green	N.L.
Cassia acuta	Senna	•			Grey-green Bold yellow flowers	N.L.
Cassia armata	Senna	•			Grey-green Bold yellow flowers	N.L.
Cassia coquiembensis	Senna		•		Grey-green Bold yellow flowers	N.L.
Cassia italica	Senna	•			Grey-green Bold yellow flowers	N.L.
Ceanothus gloriosus var. porrectus	Dwarf Pt. Reyes Ceanothus	•			Dark green Striking Blue flowers	4-7; 14-24
Ceanothus purpureus	Holly leaf Ceanothus	•		•	Dark Green Blue-purple flowers	4-7; 14-24
Cistus corbariensis	White Rockrose	•	•	•	Grey-green White flowers	16, 17, 23, 24
Cistus corsicus	Corsican Rockrose	•	•	•	Grey-green White flowers	16, 17, 23, 24
Cistus landanifera	Crimson Spot Rockrose	•	•	•	Dark green White flowers	16, 17, 23, 24
Cistus salvifolius	Sageleaf Rockrose	•	•	•	Grey-green White flowers	16, 17, 23, 24
Cistus villosus	Rockrose	•	•	•	Dull green Purple-rose flowers	16, 17, 23, 24

PLANT LIST SMALL SHRUBS (3-5 Fe	et)	DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
Encelia farinosa	Desert Encelia	•	•		Grey Yellow flowers	N.L.
Eriogonum crocatum	Saffron Buckwheat	•		•	Grey Bright yellow flowers	14-24
Eriogonum fasciculatum	Common Buckwheat			•	Grey White-pink flowers	8-9; 14-24
Eriogonum giganteum	St. Catherine's Lace	•		•	Grey White-pink flowers	N.L.
Eriogonum parvifolium	Seacliff Buckwheat		•	•	Dark green White to pink flowers	N.L.
Grindelia stricta	Prostate Gum Planta		•		Grey Yellow flowers	N.L.
Helianthemum nummularium	Sun Rose	•	•		Grey-green range Red to white flowers	N.L.
Limonium axilarius	Sea Lavendar	•	•		Grey lavendar	N.L.
Limonium pectinatum	Sea Lavendar		•		Grey Purple flowers	N.L.
Limonium vulgarius	Sea Lavendar	•			Grey-green Purple-white flowers	N.L.
Mimulus longiflorus	Southern Monkey Flower	•	•		Green Yellow flowers	18-24
Salvia clevelandii	Cleveland Sage	•		•	Grey-green Blue-purple flowers	10-24
Salvia leucophylla	Purple Sage Californica	•		•	Grey-green Purple flowers	10-24
Salvia mellifera	Black Sage			•	Dark Green Pale blue flowers	10-24
MEDIUM SHRUBS (5-	10 Feet)					
Arctostaphylos densiflora "Howard McMinn"	Vine Hill Manzanita	•		•	Dark Green Pale pink flowers	7-9; 14-21

PLANT LIST MEDIUM SHRUBS (5-10 Feet)		DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
					Grey Pale yellow flowers	2-24
Atriplex canescens	Four-Wing Saltbush	•			Grey-green Pale yellow	
Atriplex lentiformis var. breweri	Brewer Saltbush	•	•	•	flowers	7-14; 18-19
Atriplex nummularia	Giant Saltbush	•		•	Grey-green Pale flowers	N.L.
Atriplex rhagodioides	Saltbush	•	•	•	Grey-green	N.L.
Ceanothus griseus "Santa Ana"	Santa Ana ceanothus	•		•	Dark green Blue flowers	4-7; 14-24
Echlum Fastuosum	Pride of Madeira	•	•		Grey-green Purple-blue flowers	14-24
Eriodicton trichocalyx	Yerba Santa		•		Grey-blue Blue flowers	N.L.
	Bladder Pod				Pale grey-green Pale yellow flowers	18-24
Isomeris arborea Plumbago auriculata	Cape Plumbago	•			Blue & White flowers	18, 9; 12-24
Rhamnus californica	California Coffee Berry	•		•	Pale olive green Red berries	4-24
Rhamnus crocea	Redberry	•		•	Dark green Red berries	7-16; 18-21
Salvia apiana	White sage				Grey Light purple flowers	18-24
Viguera deltoides parishia	Desert Sunflower	•	•		Bright yellow daisy-like flowers	N.L.
LARGE SHRUBS (10-16						
Acacia graffiana	Acacia	•			Yellow-green Yellow flowers	18-24
Acacia notabilia	Acacia	•			Yellow-green Yellow flowers	18-24
	Golden Wattle	•		•	Yellow-green Bright yellow flowers	18-24
Acacia pycnantha Arbutus uneco	Strawberry tree				Heavy foliage	4-24

PLANT LIST LARGE SHRUBS (10-18 F	F ec t)	DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
					Grey-green	N.L.
Baccharis emoryi	Malefat				dicy-green	1111
Baccharis pilularis consanguiena	Chapparal Broom	•	•	•	Green white flowers	5-11; 14-24
Cercidium floridum	Blue Palo Verde	•			Blue-green	10-14; 18-20
Dodonaea viscosa	Hopseed Bush	•			Green or purple leaves	7-9; 12-24
Nerium oleander	Oleander	•			White & rose flowers	8-16; 18-23
Prosopis glandulosa	Mesquite	•		•	Light lacy green	5-14
	Lemonade Berry	•		•	Green Pink-white flowers	15-17; 20-24
Rhus integrifolia				•	Green Showy white flowers	20-24
Rhus laurina	Sugar Bush	-			Dark green Showy white flowers	7-24
Rhus ovala	Sugar Bush	•			liowers	
Simmondsia chinensis	Jojoba	•	•		Pale green	10-13; 19-24
Tecomaria capensis	Cape Honeysuckle	•	•		Dark green Scarlet-yellow flowers	16; 18-23
Parkinsonia aculeata	Mexican Palo Verde	•	•		Yellow-green	11-24
			•			
SMALL TREES (15-25 F	eet)		T		Green	
Caesalpinia gilliesil	Bird of Paradise Bush	•			Bright yellow flowers	8-16; 18-23
Casuarina	Beefwood	•			Olive drab	8-9; 13-24
Cercidium	Palo Verde	•		•	Yellow flowers	10-14; 18-20
Cercus occidentalis	Western Red Bud			•	Light green Magenta flowers	2-24
	·					8-24
Cypress Escalara	Arizona Cypress					1

PLANT LIST SMALL TREES (15-25 Feet)				SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
Eucalyptus lehmanii	Fingerstall Gum	•			Medium green	21-24
Eucalyptus spathulata	Narrow- leafed gimlet	•			Grey-green	19-24
Ficus pseudosycomorous	Sycamore Fig	•			Medium-green	20-24
Ficus salicifolia					Green	N.L.
Ficus infectorius		•			Green	N.L.
Heteromeles arbutifolia	Toyon	•	•	•	Dusty green red berries	5-24
Melaleuca nesophila	Pink melaleuca	•			Pale olive green	9, 13; 16-24
Rhus lancea	African Sumac	•		·	Medium green	8, 9; 12-24
Stenolobium stans	Yellow-elder	•			Green Yellow flowers	12, 13; 21-24
MEDIUM TREES (25-40 F	eet)					
Juglans californica	Black Walnut	•			Dark green	18-24
Tamarix aphylla	Athel Tree		•		Grey to blue-green	7-24
Eucalyptus cornuta	Yate Tree	•			Green	17; 19-24
Olea europea	Olive	•			Pale olive-green	4-7; 14-19
Ziziphus spina-christi	Jujube	•			Bright green to yellow; red fruits	4-16; 18-24

PLANT LIST LARGE TREES (40+ Feet)	DROUGHT RESISTANT	FIRE RESISTANT	SLOPE RETENTION/ EROSION CONTROL	COLOR	ZONE¹
Aesculus californica	California Buckeye			•	Dark green; fragrant	4-7; 14-19
Cupressus arizonica	Smooth Arizona Cypress	•			Green	8-24
Eucalyptus camaldulensis	Red Gum			•	Green	8, 9; 12-24
Eucalyptus leucoxylon rosea	Pink Ironbark	•		•	Grey-green; cream flowers	9, 12-24
Eucalyptus viminal	Manna Gum			•	Medium green	8, 9; 12-24
Quercus agrifolia	Coast Live Oak	•		•	Rich, shiny green	7-10; 12; 14-24
				·		
					-	
		·				

Footnotes:
1. Corresponds to zones identified in the Sunset Western Garden Book, Lane Publishing. Actual site could be modified by microclimate.
N.L. = Not listed. Sunset Zone not established, check locally.

Credits

HILLSIDE DESIGN COMMITTEE

Hillside Design Committee

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GRAPHICS

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